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# 16

## From premium to freemium: The political economy of the app

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**F**or decades, the game industry has been dominated, if only in terms of revenue and mindshare, by a tandem of globally operating game publishers and game console platform holders. Historically, these two small groups of industrial actors, primarily located in North America and Japan, have been ‘dominant forces’ in the game industry (Consalvo 2007, 123). Similarly, Johns (2006) notes that power relationships in the game hardware and software production networks are uneven and are affected by temporal and spatial dimensions. Driven by the cyclical introduction of new hardware platforms, the platform/publisher duo served a relatively stable, highly lucrative niche market (Williams 2002; Kerr 2006). Every five to seven years, development and marketing budgets increase and, as a result, so do financial risks and the distribution of capital and power (Schilling 2003). Geographically, the main centers for console game development have been North America, Western Europe and the Asia Pacific (Johns 2006). That is to say, the majority of the billions of dollars of value generated by the sale of video game hardware and software has been captured by a small number of globally operating firms who have a high rate of incumbency. The relationship between game

publishers (e.g. EA, Activision Blizzard and Ubisoft) and a triopoly of platform holders (i.e. Sony, Microsoft and Nintendo) is best described as symbiotic and is regarded as a canonical example of a 'two-sided' or 'platform market' (Rochet and Tirole 2003; Evans, Hagiü and Schmalensee 2006).

More recently, the resurgence in PC gaming together with the mass diffusion of smartphones and tablets signaled a diversification in gaming audiences, hardware platforms, development practices and publishing strategies (Mäyrä, 2008). Rayna and Striukova (2014) describe the 'traditional' business model for physically distributed games as a 'few-to-few' business paradigm, with a small number of industrial actors catering to a distinctive audience. Conversely, the emerging business paradigm associated with mobile devices is better understood as a 'many-to-many' model. Instead of catering to 'a base of young male hardcore fans' who are attracted to 'strongly gender coded scenarios of war, conquest, and combat' (Kline, Dyer-Witthford and De Peuter 2003, 247), game companies targeting mobile platforms are able to reach a wider and much more diverse audience in terms of age, gender and location. Mobile phone usage is at an all-time high and apps have rapidly become a relevant economic and cultural form (Goggin 2011). Exploratory research by Okazaki, Skapa and Grande (2008, 832) suggests that 'perceived convenience' (i.e. the ability to play anywhere, anytime) afforded by mobile devices, has been an important determinant of mobile gaming adoption. Similarly, Crawford notes that: 'advances in mobile and media technologies have helped make playing video games a much more simple and everyday activity' (2012, 152). The diffusion of accessible hardware coincides with the popularization of casual games (Juul 2010). For example, game studio King serves over 340 million players across emerging platforms with popular puzzle games such as *Candy Crush Saga* and *Farm Heroes Saga* (King Digital Entertainment 2014).

The viability of the emerging collective of proprietary platforms operated by Google, Amazon, Facebook and Google resulted in a disruption of the business models traditionally associated with media companies (Van Dijck 2013; Fuchs 2014). The rapid ascendance of new market entrants in the game industry such as King mark a fundamental shift in institutional power relations among platform holders and developers. Independent game studios, start-ups, artists, hobbyists and students have been able and quite eager to enter the new market for mobile games; a market that is much more accessible and potentially lucrative for newcomers. Compared to multi-million dollar blockbuster productions for dedicated game consoles financed by large incumbent game publishers (Nichols 2014), developing a mobile game is not only considerably cheaper, but also a much faster process. To take an app from idea to publishing can be a matter of months rather than years (Holzer and Ondrus 2011; Banks 2012). That is to say, emerging game platforms offer

game studios a much wider array of development and publishing choices, most notably the option to bypass incumbent game publishers via self-financed game productions.

Yet, despite the mobile market's appeal as a relatively accessible and growing market, the segment already exhibits signs of increasing industry consolidation and subsequently the concentration of capital and power. The mobile segment, I would argue, is accessible, but deceptively so. The unprecedented revenue growth of King and surprise sleeper hits such as the by-now infamous *Flappy Bird* fuel the perception that emerging platforms offer a level playing field for *all* game developers.<sup>1</sup> In this chapter I want to challenge the egalitarian notion of the app economy as a 'many-to-many' model. Rather, the lure of accessibility functions in a similar way as the American Dream. The app economy holds great riches indeed and appears to offer great wealth for those who are willing to work hard. With app development being considered a 'sunrise occupation', developers feel that a hit game is always within reach (Bergvall-Kåreborn and Howcroft 2013). That said, drawing on critical political economic theory, I would contend that the mobile segment should be considered as a 'few-to-many' model. A handful of superstars camouflage the inherent power asymmetries and the strong winner-take-all dynamic constituting the political economy of the information economy.

In order to gain a deeper insight into the many ways power and wealth are related, my argument is informed by the 'institutional' tradition of critical political economy (Mosco 2014). This macro-economic approach pays special attention to the relationship among industrial actors and the control over the means of production and circulation. Vital to this macro-economic approach and to studying the articulation of power in the cultural industries, is the process of spatialization. This process concerns questions of ownership and power, and is best understood as 'the institutional extension of corporate power in the communication industry' (Mosco 2009, 158). This approach studies the for-profit entities' tendency to cluster capital and pays special attention to the concentrated nature of industrial ownership. Critically engaging the business practices and business models of mobile game studios allows for a reflection on the implications of the changing power dynamic among industrial actors.

## Keep calm and follow the money

Incumbent and newly entering actors who want to gain foothold in the mobile segment are constantly forced to reconsider all functions of their business models (Bergvall-Kåreborn and Howcroft 2013, 971–2). Chesbrough (2007) offers six functions that together make up the business model framework: the

value proposition, target market, value chain, revenue model, value network or ecosystem and a firm's competitive strategy. As my interest lies with intra-industry positioning of individual firms I will focus on three functions in particular, the value chain and network and the revenue model. The most visible of these changes would be the dramatic shift from the dominance of the premium (transaction-based) revenue model towards various incarnations of 'free'-revenue models, which will be discussed in the second half of this chapter.

Moreover, I will contend that emerging platforms have become key spaces in which established and new practices of cultural production and circulation are (re)negotiated and (re)organized (cf. Van Dijck 2013). While the means of app production are undeniably accessible to a wider group of individuals, one can question the ability of new entrants to attract sufficient users. As Kline, Dyer-Witthof and De Peuter observe: 'in many media industries, the high ground for strategic control of interactive game revenues lies not in production but in marketing and distribution' (2003, 178). Emerging platforms, such as Apple's iOS ecosystem, operate highly integrated online marketplaces that grant platform holders more, rather than less power over the means of circulation. For example, by prominently featuring an app in its App Store, Apple can 'bump an app' and generate significant downloads. In addition, Broekhuizen, Lampel and Rietveld (2013) note that for direct-to-consumer business models to be financially feasible, developers still need access to 'specialized complementary assets' such as a large content portfolio and marketing skills and assets.<sup>2</sup> Their exploratory research suggests that both incumbents and newcomers benefit from the ability to hold on to or acquire these assets, which are best qualified as capital-intensive, but also 'inimitable, scarce and difficult to reproduce' (ibid., 955). Since access to the means of circulation (i.e. marketing and distribution) is highly controlled I would argue that it has become the locus of control in the app economy.

To offer a contextual baseline and a comparative framework to critically discuss continuities and changes in the institutional configurations, the current shifts in the mobile segment will be compared against the traditional market segment of Triple-A video games. To limit the scope of this chapter, the main focus will be on video games published in North America and Western Europe for networked game consoles (Xbox 360 and PlayStation 3) and mobile games published for Apple's mobile (i.e. iOS) devices. By offering a comparative and material perspective, the aim of this chapter is to offer a critical and historical dimension to current debates on the economics of mobile gaming.

The subsequent analysis of the Triple-A game segment is informed by over two dozen of semi-structured interviews conducted between 2006 and 2010 with a wide range of industry informants in Western Europe and North America (Nieborg 2011). In addition, the analysis of the mobile segment

draws on conversations with forty-five interviewees who are active as game critics, business analysts, developers of independent game studios, PR representatives, game designers, academics and informants working for state-sponsored business accelerators and regional development agencies in Israel, Germany, the Netherlands, the United Kingdom, Sweden, Finland and the United States. These semi-structured interviews were conducted between late 2012 and early 2015. Before examining the emerging business models in the mobile segment, I will first discuss those functions of the Triple-A business model related to its revenue mechanism, the configuration of the value chain and the institutional arrangement of the segment's ecosystem.

## The console segment

Decades of unimpeded growth in terms of users, revenue and for some profit, demonstrate that game developers and publishers have been quite capable of creating and capturing value in the face of constant change. Acknowledging the many years of steady revenue growth, mainstream press accounts chronicling the rise of the game industry are almost without exception focused on hit games and the game studios that 'made it'. Today's game industry, however, is far from a capitalist wonderland that is populated by winners only and where hard work is always rewarded (Kerr 2006). On the contrary, scholars have signalled pervasive issues related to the labour precarity of industry professionals (Deuze, Martin and Allen 2007; Dyer-Witheford and De Peuter 2009) and the secretive nature of game development, which results in the perpetuation of a number of 'toxic' myths about the industry (O'Donnell 2014, 149).

The environment of Triple-A video game publishing is particularly volatile and associated with considerable financial risks (Nieborg 2011). Apart from generic macro-economic challenges, the Triple-A industry segment: 'is faced with highly insecure market success, long product development times and costs as well as perishable products' (Teipen 2008, 311). While the marginal cost of reproducing games, being information goods, is low, one of the notable properties of video game development is high up-front investments (Hesmondhalgh 2007). These investments have grown dramatically over the last decade. Consider the hundreds of millions invested in titles such as *Grand Theft Auto V* (2013) and a reported US\$500 million for the *Destiny* (2014) franchise (Grover and Nayak 2014).

Since the first generation of console game platforms, the revenue model operated by game publishers has been relatively stable and singular, and revolved around the one-time sale of physical commodities (i.e. discs).

Revenue sources in the television industries, for example, are more diverse and are typically generated through the commodification of audiences (i.e. advertising) and the licensing of television content and the sale of reruns (Kompore 2005). Conversely, Triple-A games tend to be impact-upon-release products with a rather truncated life cycle. Even though game publishers increasingly experiment with digitally distributed commodity forms, for example the sale of downloadable content (Nieborg 2014), a publisher's income is still primarily derived from the one-time sale of heavily marketed, premium priced games.

Surveying the Triple-A value chain it becomes immediately clear that the tandem of game publishers and game hardware platform owners are best positioned to capture the majority of value. Both are co-dependent on a financial as well as a technological level and hold two crucial positions of power. Readman and Grantham label game publishers as 'chain governors' because of their coordinating role, as they 'provide the majority of funding for games development which enables them to set the parameters to which all other stakeholders have to perform' (2006, 263). The core task of a publisher is to act as a clearinghouse for intellectual property (IP), to initiate and finance game production, to oversee physical distribution and manage PR and marketing campaigns (O'Donnell 2014).

The console game value chain started as a highly integrated system, followed by a phase of disintegration, in order to move towards the current phase of both chain integration and disintermediation (Gallagher and Park 2002; Schilling 2003). Two examples of disintermediation of the Triple-A value chain are game publisher's outsourcing development tasks and software development (i.e. middleware or engines, cf. Kerr and Cawley 2012) and marketing and PR activities to local partners (cf. Deuze, Martin and Allen 2007; Grantham and Kaplinsky 2005). While these instances of chain disintermediation might suggest less control over chain linkages by a game publisher, in practice it offers a publisher financial flexibility and an opportunity to offset financial risks. As such publishers can leverage their high-capital position, thereby gaining more control over the entire chain. Chain integration, on the other hand, is taking place because publishers are poised to leverage their 'complementary assets' (Broekhuizen, Lampel and Rietveld 2013).

Platform holders, for their part, consist of a triopoly of incumbents who, arguably, are the most vertically integrated companies within the game industry (Kline, Dyer-Witthford and De Peuter 2003). Nintendo, Microsoft and Sony exert total control over their platforms by deciding which companies are able to obtain essential software development kits ('dev kits') and licensing rights and control the circulation of content through an elaborate set of physical and legal protection schemes.

In sum, the Triple-A value network exhibits highly concentrated instances of institutional power (Johns 2006). The majority of game publishers and platform holders are publicly traded companies that are well-positioned to profit from economies of scale and take advantage of their access to high capital. This particular modality of cultural production, combined with the closed-off, proprietary nature of console hardware, translates into high barriers to market entry. Add to that the increasing financial risks that accompany blockbuster production, which has led to numerous mergers and acquisitions and the bankruptcy of a number of once dominant game publishers, such as THQ and Midway Games.

Let us leave the few-to-few model behind and focus on emerging game platforms. Next I will argue that, compared to the Triple-A segment, the mobile segment exhibits a high degree of diversity in terms of revenue models and the origin and size of industrial actors inhabiting the ecosystem. Consequently, the segment not only marks a significant repositioning of industrial actors, it is indicative of a service-based mode of cultural production and circulation (cf. Rifkin 2000).

## The app economy

Contrary to dedicated game consoles, the smartphone's promise of connectedness and integration with physical and online social networks made mobile technology a vital part of everyday life (Quinn and Oldmeadow 2013). The 2007 introduction of the iPhone and the subsequent launch of the iPad in 2010 reinvigorated the mobile phone's viability as a mass market gaming platform and created the novel product category of tablet-based games (Goggin 2009; West and Mace 2010). One can make a purely financial argument of the viability of the mobile market considering recent revenue growth. The mobile (both smartphone and tablet) segment's 2013 revenue topped US\$17.6 billion, much more than handheld console games (US\$4.4b) or the US\$7.4 billion generated by web-based casual games (Newzoo 2014).

The rapid diffusion of networked mobile game platforms and the promise of revenue growth galvanized efforts by game developers to enter the market for mobile games and to subsequently experiment with new business models. In the era of feature phones mobile game development was complex and cumbersome, as dominant business models in the mobile segment were 'telco-centric'; that is telecommunications operators pursued a semi-walled garden or one-sided market strategy (Ballon 2009). Taking over the gatekeeper role from telecom operators, Apple employs a 'device-centric' business model in which the smartphone's programmability translates into radically lower production costs for applications compared to both feature phone and console

game development (*ibid.*). That is to say, unlike console game development, iOS developers do not need expensive proprietary software development kits to initiate game development (cf. Evans, Hagiú and Schmalensee 2006). While the widespread use of open source development tools for games is uncommon, there are many affordable options available for mobile game studios, chief among which is Unity's integrated development environment and engine, which has seen widespread adoption (cf. O'Donnell 2014).<sup>3</sup>

The original strategy for the iPhone was to first and foremost offer an optimal device to experience the Web on a high-end device (West and Mace 2010). Soon, however, Apple opted for a platform or 'two-sided market' strategy and introduced the proprietary App Store in order to allow consumers to download third-party software (Cuadrado and Dueñas 2012). In the last quarter of 2013, games were increasingly dominant as they represented 80 per cent of the total revenue in mobile application stores (Newzoo 2014). With Apple at the helm, mobile platforms have changed the ways in which mobile games as cultural commodities are developed and circulated (Goggin 2009).

Moreover, game development for emerging platforms has become a viable option for incumbents and new market entrants of all stripes, ranging from hobbyists, students, artists and well-funded start-ups, to bootstrapping independent studios, incumbent video game publishers and mobile veterans from the era of feature phones, among others. Initial research has shown that a 'diverse group (in terms of geographical dispersion and position in the industry)' is engaged in app development, 'including seasoned developers who switched from working on PCs to smartphones, as well as a 14-year-old teenager who creates Apps out of interest' (Mosemghvdlishvili and Jansz 2013, 16). The ease of development is demonstrated by the availability of apps. Mid-2014, the number of all apps in the US App Store topped the 1.1 million mark, with US\$13 billion being paid to developers, the majority of which are, again, game developers.<sup>4</sup>

While mobile game development tools are relatively affordable, getting a game published in the App Store is subject to a wide range of stringent rules and ever-changing regulations, as Apple exerts a high degree of control over its platform (Goggin 2011; Cuadrado and Dueñas 2012). And in the case of Apple, game developers are tethered to Apple's uniform hardware strategy and its fully integrated, centralized portal (i.e. the App Store) on both an economic and technological level (Holzer and Ondrus 2011). First, Mac hardware is needed to be able to operate the iOS Software Development Kit (SDK) and upload apps. Secondly, similar to other application stores operated by Google, Microsoft and Facebook, Apple subtracts a somewhat arbitrary 30 per cent of all app revenues. Third, before an app is published Apple reviews it and developers need to follow strict review guidelines covering criteria such as 'technological information, privacy, religion, gender, trademarks, and more'



(Bergvall-Kåreborn and Howcroft 2011, 567). The review process has an air of inconsistency and is notoriously opaque, little is known about 'the apps that Apple refuses' (Goggin 2011, 154). That said, the time-to-market for green-lighted apps is much quicker (i.e. days rather than weeks), compared to the months that it takes physically distributed Triple-A games.

Simply put, the role of Apple in the value network is all encompassing and pervasive. Only in aggregate would unionized app developers be able to wield any form of collective bargaining power (Bergvall-Kåreborn and Howcroft 2013). Yet, the diverse and globally dispersed nature of app development seems to hamper any form of organized dissent. It should be noted that platform governance differs among platform holders. For example, Google's rules for the Android platform appear less stringent than Apple's. Then again, from a consumer perspective, the control Apple exerts over its platform is 'radically greater' than in the 'analog world' (Lessig 2008, 97–9; cf. Zittrain 2008). Compared to discs, app usage and ownership is rather restricted, as the latter can be disabled from a distance, are tied to one user account and cannot be lent to a friend, nor can they be sold on the second-hand market. Triple-A game publishers are known to prevent the sale of second-hand games as well, but employ more passive strategies such as codes for free downloadable content for first-time owners.

## Free-to-play (F2P)

While all functions of the mobile business model are under constant (re) construction, it is the revenue model associated with app stores attracting a considerable amount of popular attention (Anderson 2009; Lovell 2013; Luton 2013). Opposed to the Triple-A segment's singular revenue model, which allows for little price elasticity, mobile platforms offer developers and publishers a much wider set of revenue streams. The App Store allows for (1) 'premium'-priced apps where users pay per individual download, (2) 'freemium' apps where the basic version is free and the full version is unlocked for an additional fee, (3) advertising supported games, (4) a subscription model, and (5) games that offer in-app purchases (IAPs), such as additional play-time or virtual items (Feijoo et al. 2012). Many developers opt for a mixture of models, although the subscription model is rarely used for mobile games.

The gravitation towards the 'free' business model has been remarkably swift. Early 2008, the premium revenue model was considered the default option and the prices for apps varied widely. Today, developers predominately opt for the F2P business model (i.e. IAPs, advertising or a mixture of both). Crucial to the F2P model is that only a small fraction of players are willing to pay for in-game

material or services (Seufert 2014).<sup>5</sup> As a result, production and circulation strategies increasingly revolve around player aggregation and data-driven design strategies for player retention and monetization (El-Nasr et al. 2013). First, the marketing of apps is fully integrated in proprietary platforms. Instead of billboard, TV-spots, web-based or search engine ads, game developers employ complex and capital-intensive 'user acquisition' strategies that serve advertisement in competing apps, often games, to demographically targeted individuals.<sup>6</sup> Second, based on player feedback and aggregated player behaviour, mobile games that gain traction among users receive frequent upgrades ranging from tweaks to the core gameplay, to additional content (e.g. levels), to changes to the 'monetization model' (e.g. the price of in-game consumables). Taken together, compared to Triple-A game development, mobile game development and circulation are much more intertwined and form a constant feedback-loop rather than the more linear production-circulation process. F2P studios with successful titles typically employ so-called live-teams resulting in significant post-release (re)development investments.

Sketching out an archetypical mobile game value chain and app store value network is increasingly difficult. Not only are revenue models in full flux, the mobile ecosystem is flooded with start-ups that offer a wide range of specialized complementary assets, such as game middleware, hosting services, app analytics and app advertisement. Because of the immense population of app developers, providers of such complementary assets offer competitive pricing because of economies of scale, allowing smaller studios access to high-end capabilities.<sup>7</sup> Arguably because of the access to such assets by a wider range of actors, the game publisher's historical role of 'chain governor' is less ubiquitous in the mobile ecosystem. It is an important, but as of yet open question whether publishers are better positioned to leverage their complementary assets compared to new entrants such as small independent studios (cf. Broekhuizen, Lampel and Rietveld 2013). EA's mobile strategy for instance, publishing mobile spin-off titles in the *FIFA*, *SimCity* and *The Simpsons* franchises, demonstrates how the veteran publisher is able to leverage its IP and portfolio. On the other hand, the new wave of billion-dollar powerhouses such as Supercell (established in 2010) support the hypothesis that new entrants are leveraging their access to specialized complementary assets or develop in-house capabilities to nullify such needs. The ascendance of King Digital Entertainment is equally revealing, showing unprecedented revenue growth, strong winner-takes-all effects, as well as the growing reliance on game marketing (i.e. user acquisition). For example, while King touts its ability to have their games grown 'organically' by implementing sharing mechanics leveraging the connectivity of both mobile platforms and Facebook, US\$376 million was spend on sales and marketing in 2013 alone (King Digital Entertainment 2014).

The current configuration of the mobile value chain, the dominance of the F2P business model and a sizeable target market means that developers have to adjust their competitive strategies accordingly. The operationalization of the app stores associated with emerging platforms advance a fundamental shift in the locus of control compared to traditional value network configurations in the game industry. In many segments of the cultural industries, such as the market for recorded music, the democratization of the means of cultural production put considerable pressure on incumbents (e.g. Bockstedt, Kauffman and Riggins 2006). In the mobile segment, however, the locus of control shifted to the platform holders. Or, as Bergvall-Kåreborn and Howcroft argue, the notion of self-control of developers is a façade 'restricted by marketing conditions and power asymmetries' (2013, 977). The F2P revenue model, which relies heavily on user aggregation and in-platform marketing, only exacerbates this issue and allows companies such as Apple to take an even more prominent position in the mobile game value network.

## Conclusion

While the publisher/platform tandem dominating the Triple-A value chain and network has as of yet not manifested itself in the mobile segment, this exploratory study of the political economy of the mobile game segment shows that the power of platform holders and their position in the ecosystem is stronger than ever before. As Johns (2006) noted in the introduction of this chapter, power relationships in the console segment have been uneven and effected by temporal and spatial dimensions. The same can be said of the mobile segment. Even though the barrier to market entry remains low, capital and ownership in the mobile segment is increasingly clustered. Despite the occasional new entrants and surprise hits, the dominant industry trend seems to be one of concentration of ownership and capital. Similar to the Triple-A segment, only a very select number of actors is able to invest heavily both in game development and app marketing, thereby ensuring their market position. Apple's App Store can be considered as 'a lucrative platform for some software developers to launch fabulously successful products' (Goggin 2011, 153). Yet, the emphasis here should be on *some* developers. In Western Europe and North America, a very select number of both incumbents, such as Activision Blizzard and Electronic Arts, together with fast growing new entrants, derive exponential revenues and considerable profits from their iOS offerings. It is undeniable that the F2P revenue model is immensely lucrative for those developers who are able to aggregate significant amounts of players. Yet, network effects ensure that, similar to other platform markets,

revenues are generated by a very small number of actors. Market intelligence firm SuperData Research estimates that the top-100 of mobile games, that is 0.05 per cent, generates 40 per cent of all revenue (Llamas 2014).

While some developers, as a case study by Banks (2012) on the Australian mobile developer HalfBrick illustrates so well, are able to use the industry's constant state of uncertainty and change combined with the formidable constraints of platform holders to their advantage, it seems that it will be increasingly challenging to remain competitive in the high-risk, capital-intensive mobile ecosystem. As opposed to product-based revenue strategies the revenue derived from IAPs has virtually no limit. Those players who pay, spend considerably. This seems to exacerbate power asymmetries and leads to further concentration of capital and power. The advent of digital distribution, coupled with advanced recommender systems, may have opened up niche markets; it does not challenge the hegemony of the hit (Fleder and Hosanagar 2009). To the contrary, the publishing strategies of mobile moguls such as King and Supercell show a striking similarity to the blockbuster economics underlying other sectors in the wider cultural industries and epitomize the notion of a so-called winner-take-all market (Frank and Cook 1995). Paid-for user-acquisition strategies in particular play well into one of the strengths of well-capitalized companies such as publicly listed enterprises and well-funded start-ups. While it is hard for a company such as King to raise the barrier to market entry in terms of game production, the company can leverage its capital basis and outspend nearly any other game company on user acquisition.

Important questions pertaining to the institutional configuration of the mobile segment remain. Significant changes in the structure of, for example Apple's App Store, are on the horizon and the iOS platform itself is constantly changing, as are consumer preferences and privacy and consumer laws. What will this mean for content diversity and will the position of 'traditional' role of game publishers (re)gain dominance? Considering the networked nature of mobile platforms and historical precedents in the cultural industries, it is highly likely that the trend of the concentration of industrial ownership will speed up, rather than slow down.

## Notes

- 1 The revenue of King grew from US\$63 million in 2011 to US\$1.8 billion in 2013 (King Digital Entertainment 2014). *Flappy Bird* is a rapidly developed, relatively simple mobile game by a young Vietnamese developer that unexpectedly generated millions of downloads over the summer of 2013 (cf. Heilmann 2014).

- 2 Drawing on the work of Teece (1986; 2006), complementary assets, Broekhuizen et al. (2013, 954) explain: '( . . . ) are those assets or capabilities that go beyond the mere technical knowledge of the innovation itself'.
- 3 Interviewees indicate that the success of Unity can be ascribed to its platform agnostic nature and its price tag. Unity has a free version and a full version priced at US\$1500. See: Unity Store. Available: <https://store.unity3d.com/>. Last visited: 5 June 2014.
- 4 See <http://148apps.biz/app-store-metrics/>. Last visited: 5 June 2014. And <http://techcrunch.com/2014/06/02/itunes-app-store-now-has-1-2-million-apps-has-seen-75-billion-downloads-to-date/>. Last visited: 5 June 2014.
- 5 While there are significant differences among games and players in terms of demographics and geography, the percentage of 'payers' ranges from 1 to 10 per cent.
- 6 The business practice of user acquisition is a form of game marketing that involves highly targeted in-app advertisements. Advertisers generally pay an amount per install (CPI or cost per install), which ranges from US\$0.50–7 in peak seasons and popular regions. Advertising consists mostly of 'interstitials' (full-screen advertisements) or a short video of game. When a user touches the ad, the App Store opens so users can download and install the advertised game.
- 7 Examples of complementary assets in the mobile domain would be development software (e.g. Unity) and additional services such Flurry and App Annie for analytics, or companies such as Chartboost and Facebook for in-game marketing and user targeting.

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